STATISTICAL STUDY ON THE PREVALENCE OF NONSYNDROMIC HYPODONTIA IN YOUTHS

E. BUD[1], S. POPŞOR[2], ANA MARIA JURCĂ[3], B. CORMOŞ SUCIU[4], MARIANA PĂCURAR[5]

[1,2,3,4,5]*University of Medicine and Pharmacy of Tîrgu-Mureş*

Keywords: *hypodontia, prevalence*

Abstract: *The objective of this study is to determine the prevalence of hypodontia in youths. The study was conducted on a sample of 804 randomly selected patients, who did not undergo dental treatment. The study revealed a prevalence of hypodontia of 6.84%. Hypodontia occurs more often in women, most frequently affecting 1 or 2 teeth, with the lower 2nd premolars and upper lateral incisors being most affected.*

Cuvinte cheie: *hipodonție, prevalență*

Rezumat: *Obiectivul acestui studiu este determinarea prevalenței hipodonției la tineri. Studiul s-a realizat pe un lot de 804 pacienți aleşi aleatoriu care nu s-au adresat serviciilor de stomatologie. Din studiul efectuat se constată o prevalență a hipodonției de 6,84%. Hipodonția apare mai frecvent la sexul feminin. Cel mai frecvent hipodonția interesează 1 sau 2 dinți, mai afectați fiind premolarii 2 inferiori şi incisivii laterali superiori.*

INTRODUCTION

Dental agenesis is the congenital absence of one or more teeth in the deciduous or permanent dentition. The term hypodonia is generally used to describe the absence of one to six teeth. When more than six teeth are missing the term severe hypodontia is used.

Agenesis, currently the most common anomaly in human dentition development, is frequently accompanied by other abnormalities: structural variations and malformations of other teeth, delayed eruption, transposition, dental crowding.

Over the years anthropologists have studied the evolution of human dentition. All came to the conclusion that the change in diet is reflected in morphological changes of the masticatory apparatus. Clinicians suggest that ageneses have increased in frequency in the last decades, but it is not certain whether this is a trend in the dentition of homo-sapiens or rather the screenings are more advanced.

THE PURPOSE OF THE STUDY

This study was conducted in order to determine the prevalence and distribution of hypodontia in the young population in the city of Tirgu-Mures. The subjects were chosen randomly from among the patients of orthodontic clinics in the city.

MATERIALS AND METHODS

The group consisted of 804 people aged between 11 and 21 years, 359 male and 445 female.

After anamnesis and exo- and endobuccal clinical examinations, in order to confirm the diagnosis in patients with suspected hypodontia, X-ray examinations were conducted using a orthopantomograph. Agenesis of the third molars was not taken into account.

Inclusion criteria: Age of patients between 11 and 21 years; Diagnosis was certain; Patients did not undergo dental extractions.

Exclusion criteria: Patients already receiving orthodontic treatment; Patients with tooth extractions; Patients with tooth loss following traumatic avulsions or periodontal disease.

Data processing: The data from each patient was centralized, provided that it was real, related to the same features and used the same unit of measurement. From data processing resulted tables and graphics. The software used was SPSS. The t-test was used for our patients groups.

RESULTS

Prevalence of hypodontia in relation to the whole group of patients was 6.84%, 55 patients presenting 1 to 9 missing teeth. Structure by age of patients affected by hypodontia is as follows: 11-13 years, 22 patients (40%); 14-16 years, 24 patients (44%); 17-19 years, 6 patients (11%); 20-21 years, 3 patients (5%).

Most patients investigated had two missing teeth - 25 patients (45%); one missing tooth - 20 patients (36%); 3 missing teeth - 4 patients (7%); 4 missing teeth - 3 patients (5%); 5 missing teeth - 1 patient (2%); 6 missing teeth -1 patient (2%); 9 missing teeth- 1 patient (2%). (Fig.1) The structure of the group with hypodontia in relation to the type and number of missing teeth is as follows: Upper lateral incisor 1.2-12; Upper 1st premolar 1.4-3; Upper 2nd premolar 1.5-11; Upper lateral incisor 2.2 -12; Upper canine 2.3-1; Upper 1st premolar 2.4-3; Upper 2nd premolar 2.5-11; Lower canine 3.1-9; Lower lateral incisor 3.2-1; Lower canine 3.3-1; Lower 1st premolar 3.4-2; Lower 2nd premolar 3.5-16; Lower 1st molar 3.6-1; Lower central incisor 4.1-3; Lower lateral incisor 4.2-1; Lower 1st premolar 4.4-1; Lower 2nd premolar 4.5-19; Lower 1st molar 4.6-1. (Fig. 2) In our study incidence was 1.3 times higher among women than among men, with 21 men and 34 women being affected.

[1] Corresponding Author: B. Cormos Suciu, University of Medicine and Pharmacy Târgu - Mureş, 38, Gh. Marinescu, Târgu - Mureş, 540000, România; e-mail: cormosbogdan@yahoo.com; tel +40-0740095204

Article received on 01.03.2011 and accepted for publication on 16.07.2011
ACTA MEDICA TRANSILVANICA September 2011; 2(3)444-445

Figure no. 1. Structure of the group affected by hypodontía according to number of missing teeth

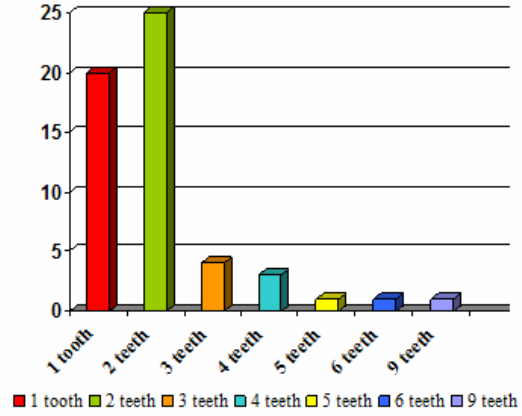
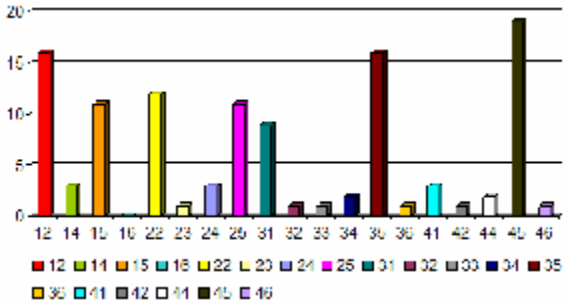


Figure no. 2. Structure of the affected group according to the type of missing teeth



The most affected teeth were: Lower 2nd premolar 30.7%; Upper lateral incisor 24.5%; Upper 2nd premolar 19%; Lower central incisor 10.5%.

Considering arcade sectors affected by hypodontia we noticed a higher occurrence in the sectors of the: lower premolars - 34%, upper incisors - 24%, upper premolars - 25%.

DISCUTIONS

Prevalence of hypodontia in our study was 6.84%, comparable to that of 6.5% found by Aasheim and Øgaard (1) in 1993, lower than that of 7.4% presented by Backman (2) in 2001 and of 7,2% found by Tallon- Walton (3) in 2010, but higher than that of 4.2% reported by Gupta in 2011 (4).

Comparing incidence by gender, in our study this was 1.3 times higher in women than in men, identical to that found by Polder (5) and Magnussen (6) but higher than that reported by Rolling (7) who found a nearly equal incidence between genders. Following the *t* test, the value of the P-value representing the significance of the test was 0.4, higher than 0.05 which corresponds to a 95% confidence. Therefore the difference between the two sexes based on the number and type of missing teeth is not statistically representative.

As far as the number of missing teeth is concerned, most frequently we found patients with two missing teeth (45.5% of cases), followed by those with one missing tooth (36% of cases) and those with three missing teeth (7.5% of cases). In 2004 Polder (5) found the following situation in descending order of frequency: 47% of patients had a single missing tooth, 35% of patients had two missing teeth and 7% had three missing teeth. As in Polder, 80% had one or two missing teeth.

Furthermore, we found that the type of teeth most frequently affected by hypodontia were: the lower 2nd premolar (30% of cases) followed by the upper lateral incisor (24.5% of cases), the upper 2nd premolar (19% of cases) and the lower central incisor (10% of cases).

Aasheim (1) (1993) showed a prevalence of 50% of the lower 2nd premolars, 20% of the upper 2nd premolars, and 16% of the upper lateral incisors. Cua-Benward (8) indicates the highest prevalence, with 41% of the upper lateral incisors, 29% of the lower 2nd premolars and 10% of the upper 2nd premolars. In his meta-analysis of 48 274 people from 10 studies Polder reported the following classification in order of frequency of affected teeth: 41.84% lower 2nd premolars, 22.5% upper lateral incisor, 20.25% upper 2nd premolars and 4% lower central incisors.

In our study bilateral and unilateral agenesis of most frequently affected teeth has the following values: upper lateral incisors present bilateral anodontia in 57.1% of cases and unilateral agenesis in 42.9%. In the case of the lower 2nd premolars bilateral agenesis has a frequency of 46.2% and unilateral agenesis of 53.8%. Bilateral agenesis affects the upper 2nd premolars in 28.5% of cases and the lower central incisors in 16.66% of cases.

These results are comparable to those of Polder (5): bilateral agenesis of the upper lateral incisors is more common than the unilateral (50.9 to 57%). For the other teeth bilateral agenesis is less frequent: lower 2nd premolars (43.5 to 47.7%), upper 2nd premolars (46.3 to 52.2%), and lower central incisors (30.5 to 51.9%).

CONCLUSIONS

Prevalence of nonsyndromic hypodontia in the permanent dentition has a value of 6.84%, comparable to the mean results from the specialty literature.

Women are more affected by hypodontia but not enough to represent statistical significance.

The most commonly affected were patients with a low level of hypodontia (1 or 2 missing teeth) which favors a more easy treatment.

The arcade sector most affected is the lower premolar region followed by the upper incisors region.

BIBLIOGRAPHY

1. Aasheim B., Ögaard B. Hypodontia in 9 - year old Norwegians related to need of orthodontic treatment. Scand J Dent Res 1993; 101: 257 - 60.
2. Backman B., Wahlin YB. Variations in number and morphology of permanent teeth in 7-year-old Swedish children.Int J. Paeddiatr Dent 2001; 11: 11-7.
3. Tallón-Walton V., Nieminen P., Arte S., Carvalho-Lobato P., Ustrell-Torrent J.M., Manzanares-Céspedes MC. Med Oral Patol Oral Cir Bucal. 2010 Jul 1; 15(4): e569-74.
4. Gupta S., Saxena P., Jain S. Prevalence and distribution of selected developmental dental anomalies in an Indian population. Journal of Oral Science 2011; Vol 53 No. 2, 231-238.
5. Polder B.J., Van't Hof M A., Van der Linden F P, Kuijpers-Jagtman A M, A meta-analysis of the prevalence of dental agenesis of permanent teeth. Community Dent Oral Epidemiology 32: 217-226.
6. Magnussen T E. Prevalence of hypodontia and malformations of permanent teeth in Iceland. Community Dentistry and Oral Epidemiology 1977; 5: 173-178.
7. Rolling S., Poulsen S. Oligodontia in Danish schools-children. Acta Odontol Scand 2001; 59: 111-2.
8. Cua-Benward G.B., Dibaj S. Ghassemi B. Prevalence of congenitally missing teeth in Class I, II, III malocclusions. Journal of Clinical Paediatric Dentistry for Children 1992; 17: 15-17.